

**Commonwealth of Kentucky
Environmental and Public Protection Cabinet
Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, Kentucky 40601
(502) 573-3382**

**AIR QUALITY PERMIT
Issued under 401 KAR 52:040**

Permittee Name: Ceradyne, Inc.

Mailing Address: 2416 Merchant Street, Lexington , KY40511

Source Name: Same as above
Mailing Address: Same as above


Source Location: 2416 Merchant Street, Lexington, KY

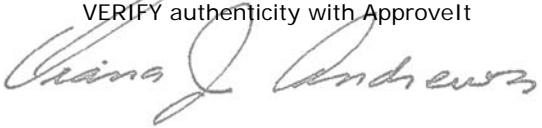
Permit Number: S-05-178 R1
Source A. I. #: 55753
Activity #: APE20050003
Review Type: Constructing/Operating
Source ID #: 21-067-00180

Regional Office: Frankfort Regional Office
643 Teton Trail ,Suite B
Frankfort, KY 40601

County: Fayette

Application
Complete Date: November 29, 2005
Issuance Date: October 24, 2005
Revision Date: December 12, 2005
Expiration Date: October 24, 2015

E-Signed by Diana Andrews
VERIFY authenticity with ApproveIt 



**John S. Lyons, Director
Division for Air Quality**

SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction and operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:040, State-origin permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining other permits, licenses, or approvals that may be required by the Cabinet or other federal, state, or local agencies.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

Emission Units 4A, 4B, 10, 12, 13, 52, 53, and 54 – Heating and Curing, Binder Removal Units, and Incinerators

Description:

Emission Unit 4A – Heating and Curing Line 1; Date Installed: 12/15/2004

Emission Unit 13 – Heating and Curing Line Mini LX3; Date Installed: Proposed

Max. Throughput: 53.35 preforms/hr at 5 lbs/preform (Line 1 and Line Mini LX3)

5 flake spacer/hr at 1.86 lb/spacer (Line 1)

Controls: Emission Unit 10 (3 mmBtu/hr natural gas inductotherm incinerator)

Emission Unit 4B – Heating and Curing Line 2; Date Installed: Proposed in Permit S-05-178

Max. Throughput: 40 preforms/hr at 5 lbs/preform (Line 2)

5 flake spacer/hr at 1.86 lb/spacer (Line 2)

Controls: Emission Unit 12 (3 mmBtu/hr natural gas inductotherm incinerator)

Emission Units 10 – Inductotherm Incinerator

Date Installed: 12/15/2004

Fuel: Natural gas (1030 Btu/scf)

Maximum Heat Input: 3 mmBtu/hr

Emission Units 12 – Inductotherm Incinerator

Date Installed: Proposed in Permit S-05-178

Fuel: Natural gas (1030 Btu/scf)

Maximum Heat Input: 3 mmBtu/hr

Emission Unit 52 – Binder Removal

Date Installed: 5/1/2004

Max. Throughput: 180 parts/hr

Controls: None

Emission Unit 53 – Binder Removal

Date Installed: 2/1/2005

Max. Throughput: 180 parts/hr

Controls: Natural gas afterburner, 1 mmBtu/hr

Emission Unit 54 – Binder Removal

Date Installed: 1/1/2005

Max. Throughput: 212 parts/hr

Controls: Natural gas afterburner, 1 mmBtu/hr

APPLICABLE REGULATIONS:

401 KAR 63:020 Potentially hazardous matter or toxic substances.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**1. Operating Limitations:**

Persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in handling these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of the humans, animals, and plants.

Compliance Demonstration Method:

Compliance is demonstrated by proper operation, according to manufacturer specifications, of the thermal oxidizers (natural gas-fired afterburner) on each of the two binder removal processes and the inductotherm incinerators on heating curing lines (Line 1 and Line Mini LX3, and on Line 2). Refer to General Conditions of the permit for malfunctions and reporting.

2. Emission Limitations:

None

3. Testing Requirements:

None

4. Monitoring Requirements:

The permittee shall monitor for proper operation of control equipment, according to manufacturer specifications each day.

5. Recordkeeping Requirements:

Refer to the General Conditions of the Recordkeeping requirements for malfunctions.

6. Reporting Requirements:

Refer to the General Conditions of the Reporting requirements for malfunctions.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Units 5, 6, 7, 9, 50, 51, and 57 – Deburring, Grinding, and Shot Blasting

Description:

Emission Unit 5 – Grinding Booth

Date Installed: 12/20/2004

Max. Throughput: 40 plates/hr at 4.22 lbs/plate

Controls: Donaldson filter

Emission Unit 6 – Deburring Booth

Date Installed: 1/5/2005

Max. Throughput: 40 plates/hr at 4.21 lbs/plate

Controls: Donaldson filter

Emission Unit 7 – Surface prep shot blast and Wheelabrator

Date Installed: 1/5/2005

Max. Throughput: 40 plates/hr at 4.2 lbs/plate

Controls: Donaldson filter

Emission Unit 9 – Foil faced spacer prep and Donaldson spray booth

Date Installed: 12/13/2004

Max. Throughput: 20 plates/hr at 1.65 lbs/spacer

Controls: None

Emission Unit 50 – Powder preparation and 12' APV spray dryer

Date Installed: 8/1/2005

Max. Throughput: 472 parts/hr

Burner: Natural gas, 1.5 mmBtu/hr

Controls: Cyclone and baghouse

Emission Unit 51 and 57 – Mechanical Pressing

Date Installed: 1/1/2005

Max. Throughput: 472 parts/hr

Controls: Mikropul dust control

Hot press plates and the silicon nitride compacts are cleaned by deburring, grinding and shot blasted before shipping out to the consumers.

APPLICABLE REGULATIONS:

401 KAR 59:010 New process operation is applicable to each affected facility associated with a process operation commenced after July 2, 1975.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Units 5, 6, 7, 9, 50, 51, and 57 – Deburring, Grinding, and Shot Blasting (Continued)

1. Operating Limitations:

None

2. Emission Limitations:

- a) Each unit shall have emissions of Particulate Matter less than 2.34 lbs per hour.

Compliance Demonstration Method:

Compliance will be demonstrated from the following emission calculation basis and monitoring requirements:

PT emission in pounds per hour = (monthly processing rate in tons/month)(1 month/hours of operation that month)(emission factor of 0.011lb/plate)(1-control efficiency)

- b) Each unit shall have Visible Emissions less than 20% opacity.

Compliance Demonstration Method:

Refer to Recordkeeping Requirements and Monitoring for this unit.

3. Testing Requirements:

None

4. Monitoring Requirements:

- a) The permittee shall monitor the amount of material processed on a monthly basis.
b) The permittee shall monitor the hours of operation of the unit on a monthly basis.
c) The permittee shall perform a qualitative visible observation of the opacity of emissions from each stack on a weekly basis and maintain a log of the observation. If visible emissions from the stack are seen, then the opacity shall be determined by EPA Reference Method 9 and an inspection shall be initiated for any necessary repairs.

5. Recordkeeping Requirements:

The permittee shall maintain records of the following:

- a) Monthly hours of operation and material processing rate; and
b) The weekly log of qualitative visual observation of opacity of emissions and the opacity determined by Reference Method 9, if any were taken, and repairs that were made due to any opacity reading which exceeded the standard.

6. Reporting Requirements:

Refer to the General Conditions of the Reporting requirements for malfunctions.

SECTION C - GENERAL CONDITIONS

A. Administrative Requirements

1. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:040, Section 3(1)(b) and is grounds for enforcement action including but not limited to the termination, revocation and reissuance, or revision of this permit.
2. This permit shall remain in effect for a fixed term of ten (10) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division [401 KAR 52:040, Section 15]
3. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Material incorporated by reference by 401 KAR 52:040, Section 1a, 11].
4. Pursuant to materials incorporated by reference by 401 KAR 52:040, this permit may be revised, revoked, reopened, reissued, or terminated for cause. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance shall not stay any permit condition [Material incorporated by reference by 401 KAR 52:040, Section 1a, 4,5].
5. This permit does not convey property rights or exclusive privileges [Material incorporated by reference by 401 KAR 52:040, Section 1a, 8].
6. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:040 Section 11(3)].
7. This permit shall be subject to suspension at any time the permittee fails to pay all fees within 90 days after notification as specified in 401 KAR 50:038, Air emissions fee. The permittee shall submit an annual emissions certification pursuant to 401 KAR 52:040, Section 20.
8. All previously issued permits to this source at this location are hereby null and void.

SECTION C - GENERAL CONDITIONS (CONTINUED)**B. Recordkeeping Requirements**

1. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of at least five years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [401 KAR 52:040 Section 3(1)(f)].
2. The permittee shall perform compliance certification and recordkeeping sufficient to assure compliance with the terms and conditions of the permit. Documents, including reports, shall be certified by a responsible official pursuant to 401 KAR 52:040, Section 21.

C. Reporting Requirements

1.
 - a. In accordance with the provisions of 401 KAR 50:055, Section 1, the permittee shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
 - i. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
 - ii. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.
 - b. The permittee shall promptly report deviations from permit requirements including those attributed to upset conditions (other than emission exceedances covered by Reporting Requirement condition 1. a. above), the probable cause of the deviation, and corrective or preventive measures taken; to the Regional Office listed on the front of this permit within 30 days. Other deviations from permit requirements shall be included in the semiannual report [Material incorporated by reference by 401 KAR 52:040, Section 5, 3].
2. The permittee shall furnish information requested by the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the permit [Material incorporated by reference by 401 KAR 52:040, Section 1a, 6].
3. Summary reports of monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation.

The summary reports are due January 30th and July 30th of each year. All deviations from permit requirements shall be clearly identified in the reports. All reports shall be certified by a responsible official pursuant to 401 KAR 52:040, Section 21.

SECTION C - GENERAL CONDITIONS (CONTINUED)

D. Inspections

1. In accordance with the requirements of 401 KAR 52:040, Section 3(1)(f) the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times. Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency:
 - a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation.
 - b. To access and copy any records required by the permit.
 - c. Inspect, at reasonable times, any facilities, equipment (including monitoring and pollution control equipment), practices, or operations required by the permit.
 - d. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.

E. Emergencies/Enforcement Provisions

1. The permittee shall not use as defense in an enforcement action, the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Material incorporated by reference by 401 KAR 52:040, Section 1a, 3].
2. An emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
 - a. An emergency occurred and the permittee can identify the cause of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
 - d. The permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division within two working days after the time when emission limitations were exceeded due to the emergency and included a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.
3. Emergency provisions listed in General Condition E.2 are in addition to any emergency or upset provision contained in an applicable requirement [401 KAR 52:040, Section 22(1)].
4. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [401 KAR 52:040, Section 22(2)].

SECTION C - GENERAL CONDITIONS (CONTINUED)**F. Compliance**

1. Periodic testing or instrumental or non-instrumental monitoring, which may consist of record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstration of continuing compliance with the conditions of this permit. For the purpose of demonstration of continuing compliance, the following guidelines shall be followed:
 - a. Pursuant to 401 KAR 50:055, General compliance requirements, Section 2(5), all air pollution control equipment and all pollution control measures proposed by the application in response to which this permit is issued shall be in place, properly maintained, and in operation at any time an affected facility for which the equipment and measures are designed is operated, except as provided by 401 KAR 50:055, Section 1.
 - b. All the air pollution control systems shall be maintained regularly in accordance with good engineering practices and the recommendations of the respective manufacturers. A log shall be kept of all routine and non-routine maintenance performed on each control device.
 - c. A log of the monthly raw material consumption and monthly production rates shall be kept available at the facility. Compliance with the emission limits may be demonstrated by computer program, spread sheets, calculations or performance tests as may be specified by the Division [401 KAR 50:055, Section 2].
2. Pursuant to 401 KAR 52:040, Section 19, the permittee shall certify compliance with the terms and conditions contained in this permit by January 30th of each year, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an approved alternative) to the Regional Office listed on the front of this permit in accordance with the following requirements:
 - a. Identification of the term or condition;
 - b. Compliance status of each term or condition of the permit;
 - c. Whether compliance was continuous or intermittent;
 - d. The method used for determining the compliance status for the source, currently and over the reporting period, and
 - e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.
 - f. The certification shall be postmarked by January 30th of each year. Annual compliance certifications should be mailed to the following addresses:

Division for Air Quality	Division for Air Quality
Frankfort Regional Office	Central Files
643 Teton Trail, Suite B	803 Schenkel Lane
Frankfort, KY 40601	Frankfort, KY 40601-1403

SECTION C - GENERAL CONDITIONS (CONTINUED)

3. Permit Shield - A permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with all:
- (a) Applicable requirements that are included and specifically identified in this permit; or
 - (b) Non-applicable requirements expressly identified in this permit [401 KAR 52:040, Section 11].

SECTION D- INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:040, Section 6. While these activities are designated as insignificant the permittee shall comply with the applicable regulation and any level of periodic monitoring specified below.

<u>Description</u>	<u>Generally Applicable Regulation</u>
1. Mixing flake and wax EP-01A	401 KAR 63:020
2. Mixing ceramic and metal powder	401 KAR 59:010
3. Armor plate pre-forming	401 KAR 63:020
4. Hot press/flake spacer press	401 KAR 63:020
5. Flake Mill	401 KAR 59:010
6. Emergency Generators	N/A
7. Nitriding, Sintering, Cleaning	401 KAR 63:020